

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|--|---|---|
| Applicant's or agent's file reference CL2310PCT | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/US 03/32090 | International filing date (day/month/year) 07/10/2003 | (Earliest) Priority Date (day/month/year) |
| Applicant E. I. DU PONT DE NEMOURS AND COMPANY | | |

Best Available Copy

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 9 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/32090

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: claims 1-7

A one layer coating system comprising a fluorinated copolymer having the formula VF₂/TFE/HFP wherein the molar ratio TFE/HFP is 0.1-1.9 and the VF₂ content is 47-60 mol%.

2. claims: claims 8-12

A one layer coating system consisting of a fluorinated copolymer having the formula VF₂/HFP wherein the VF₂ content is 40-80 mol%.

3. claims: claims 13-16

A one layer coating system comprising a fluorinated copolymer having the formula VF₂/TFE/PMVE wherein the VF₂ content is 18-60 mol% and the TFE/PMVE mole ratio is 0.1-1.9.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/32090

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C09D127/16 C09D127/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C09D C08L C08F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | WO 00/55130 A (IWATO SATOKO ;KAKU MUREO (JP); TATSUHIRO TAKAHASI (JP); FEIRING AN) 21 September 2000 (2000-09-21) claims; example 19 ----- | 1-7 |
| X | US 2003/166807 A1 (BIENER WILHELM-FRANZ ET AL) 4 September 2003 (2003-09-04) table 2 page 3, paragraph 52 ----- | 1-7 |
| X | US 2003/170455 A1 (IWAKIRI RYUZI ET AL) 11 September 2003 (2003-09-11) claims; example 10 ----- | 1-7 |
| X | US 4 335 238 A (MOORE ALBERT L ET AL) 15 June 1982 (1982-06-15) example 2 column 6, lines 46-48 ----- | 1-7 |
| | -/-- | |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

27 May 2004

Date of mailing of the international search report

09.06.04

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Baekelmans, D

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/32090

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | US 4 123 603 A (STEWART JR CLARE A) 31 October 1978 (1978-10-31) column 2, line 33; claims | 1-7 |
| X | US 2002/094440 A1 (ROLLER MARK B ET AL) 18 July 2002 (2002-07-18) examples 3-5 | 8-12 |
| X | EP 0 365 933 A (DAIKIN IND LTD) 2 May 1990 (1990-05-02) claim 1 | 8-12 |
| X | US 4 764 431 A (MANGANELLI DEL FA CARLO ET AL) 16 August 1988 (1988-08-16) example 1 | 8-12 |
| X | WO 01/37043 A (FRENCH ROGER HARQUAIL ; ZUMSTEG FREDRICK CLAUS JR (US); DU PONT (US);) 25 May 2001 (2001-05-25) claims 10-13 | 8-12 |
| X | US 3 023 187 A (SHEN LO ELIZABETH) 27 February 1962 (1962-02-27) column 8, line 73 - column 9, line 3; claims 1-3 | 8-12 |
| X | GB 1 395 609 A (TEIJIN LTD) 29 May 1975 (1975-05-29) comparative examples 2, 7 and 9 | 8-12 |
| X | FR 1 350 581 A (DU PONT) 24 January 1964 (1964-01-24) the whole document | 8-12 |
| X | GB 871 582 A (DU PONT) 28 June 1961 (1961-06-28) the whole document | 8-12 |
| X | US 3 194 796 A (NOONAN SQUIRE EDWARD) 13 July 1965 (1965-07-13) the whole document | 8-12 |
| X | US 3 235 537 A (ARTHUR GALLAGHER GEORGE ET AL) 15 February 1966 (1966-02-15) column 4, lines 71-75; example 12 | 13-16 |
| A | US 4 546 141 A (GEBAUER GERHARD) 8 October 1985 (1985-10-08) the whole document | 13-16 |
| A | DE 32 27 045 A (HOECHST AG) 26 January 1984 (1984-01-26) the whole document | 13-16 |
| | -/-- | |

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/32090

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 4 395 445 A (GEBAUER GERHARD ET AL) 26 July 1983 (1983-07-26) claims ----- | 13-16 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/32090

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---|
| WO 0055130 | A | 21-09-2000 | CA 2360903 A1 21-09-2000 EP 1169399 A2 09-01-2002 JP 2002539293 T 19-11-2002 WO 0055130 A2 21-09-2000 |
| US 2003166807 | A1 | 04-09-2003 | DE 19924439 A1 30-11-2000 AU 5213200 A 18-12-2000 CA 2375331 A1 07-12-2000 DE 50005532 D1 08-04-2004 WO 0073360 A1 07-12-2000 EP 1189954 A1 27-03-2002 JP 2003501498 T 14-01-2003 |
| US 2003170455 | A1 | 11-09-2003 | JP 9165535 A 24-06-1997 DE 69631790 D1 08-04-2004 EP 0869157 A1 07-10-1998 WO 9722671 A1 26-06-1997 US 2001003127 A1 07-06-2001 |
| US 4335238 | A | 15-06-1982 | CA 1215493 A1 16-12-1986 DE 3168061 D1 14-02-1985 EP 0050437 A1 28-04-1982 JP 57098514 A 18-06-1982 JP 61050487 B 05-11-1986 |
| US 4123603 | A | 31-10-1978 | AU 523479 B2 29-07-1982 AU 3663078 A 06-12-1979 BE 867619 A1 30-11-1978 CA 1103398 A1 16-06-1981 DE 2823179 A1 07-12-1978 DK 237478 A ,B, 01-12-1978 FR 2393012 A1 29-12-1978 GB 1600940 A 21-10-1981 IE 46834 B1 05-10-1983 IT 1096613 B 26-08-1985 JP 1401544 C 28-09-1987 JP 53149291 A 26-12-1978 JP 62001965 B 17-01-1987 LU 79728 A1 02-02-1979 NL 7805923 A ,B, 04-12-1978 SE 439489 B 17-06-1985 SE 7804128 A 01-12-1978 SU 865129 A3 15-09-1981 |
| US 2002094440 | A1 | 18-07-2002 | AU 1129902 A 08-04-2002 AU 9316101 A 08-04-2002 CA 2425753 A1 04-04-2002 CN 1477980 T 25-02-2004 EP 1335761 A1 20-08-2003 WO 0226280 A1 04-04-2002 AU 1132102 A 08-04-2002 AU 7730201 A 11-04-2002 AU 9486901 A 08-04-2002 CA 2357881 A1 29-03-2002 CA 2424029 A1 04-04-2002 CA 2424038 A1 04-04-2002 CA 2424049 A1 04-04-2002 EP 1192957 A2 03-04-2002 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/32090

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| US 2002094440 A1 | | EP 1322235 A1 | 02-07-2003 |
| | | EP 1322351 A1 | 02-07-2003 |
| | | EP 1322342 A1 | 02-07-2003 |
| | | JP 2002238994 A | 27-08-2002 |
| | | WO 0226139 A1 | 04-04-2002 |
| | | WO 0226281 A1 | 04-04-2002 |
| | | WO 0226271 A1 | 04-04-2002 |
| | | US 2002111590 A1 | 15-08-2002 |
| | | US 2002133183 A1 | 19-09-2002 |
| | | US 2002051730 A1 | 02-05-2002 |
| EP 0365933 A | 02-05-1990 | JP 2115253 A | 27-04-1990 |
| | | EP 0365933 A2 | 02-05-1990 |
| US 4764431 A | 16-08-1988 | IT 1207493 B | 25-05-1989 |
| | | AT 52243 T | 15-05-1990 |
| | | DE 3670627 D1 | 31-05-1990 |
| | | EP 0192494 A1 | 27-08-1986 |
| | | GR 860488 A1 | 18-06-1986 |
| WO 0137043 A | 25-05-2001 | CN 1391664 T | 15-01-2003 |
| | | EP 1238309 A1 | 11-09-2002 |
| | | EP 1238310 A1 | 11-09-2002 |
| | | JP 2003514955 T | 22-04-2003 |
| | | JP 2003514956 T | 22-04-2003 |
| | | WO 0137043 A1 | 25-05-2001 |
| | | WO 0137044 A1 | 25-05-2001 |
| US 3023187 A | 27-02-1962 | NONE | |
| GB 1395609 A | 29-05-1975 | JP 51034415 B | 27-09-1976 |
| | | JP 55004123 B | 29-01-1980 |
| | | JP 48030787 A | 23-04-1973 |
| | | JP 52003432 B | 27-01-1977 |
| | | CA 964786 A1 | 18-03-1975 |
| | | DE 2233025 A1 | 18-01-1973 |
| | | US 3966660 A | 29-06-1976 |
| | | US 4183837 A | 15-01-1980 |
| FR 1350581 A | 24-01-1964 | US 3194796 A | 13-07-1965 |
| | | DE 1494496 A1 | 13-02-1969 |
| | | GB 1001765 A | 18-08-1965 |
| GB 871582 A | 28-06-1961 | DE 1097405 B | |
| | | FR 1209590 A | 02-03-1960 |
| US 3194796 A | 13-07-1965 | DE 1494496 A1 | 13-02-1969 |
| | | FR 1350581 A | 24-01-1964 |
| | | GB 1001765 A | 18-08-1965 |
| US 3235537 A | 15-02-1966 | DE 1569309 A1 | 09-04-1970 |
| | | DE 1240669 B | 18-05-1967 |
| | | FR 1330387 A | 21-06-1963 |
| | | GB 953098 A | 25-03-1964 |
| US 4546141 A | 08-10-1985 | DE 3227043 A1 | 26-01-1984 |
| | | DE 3227044 A1 | 26-01-1984 |
| | | DE 3227045 A1 | 26-01-1984 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/32090

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| US 4546141 | A | | BR 8303860 A | 28-02-1984 |
| | | | CA 1212189 A1 | 30-09-1986 |
| | | | DE 3366454 D1 | 30-10-1986 |
| | | | EP 0100889 A1 | 22-02-1984 |
| | | | ES 8407325 A1 | 01-12-1984 |
| ----- | | | | |
| DE 3227045 | A | 26-01-1984 | DE 3227045 A1 | 26-01-1984 |
| | | | BR 8303860 A | 28-02-1984 |
| | | | CA 1212189 A1 | 30-09-1986 |
| | | | DE 3366454 D1 | 30-10-1986 |
| | | | EP 0100889 A1 | 22-02-1984 |
| | | | ES 8407325 A1 | 01-12-1984 |
| | | | US 4546141 A | 08-10-1985 |
| ----- | | | | |
| US 4395445 | A | 26-07-1983 | DE 2906787 A1 | 04-09-1980 |
| | | | CA 1153485 A1 | 06-09-1983 |
| | | | DD 149234 A5 | 01-07-1981 |
| | | | DE 3060396 D1 | 01-07-1982 |
| | | | EP 0014974 A2 | 03-09-1980 |
| | | | PL 222155 A1 | 03-11-1980 |
| ----- | | | | |

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.